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1. Document ID: US 20010049141 A1

L1: Entry 1 of 4 File: PGPB Dec 6, 2001

PGPUB-DOCUMENT-NUMBER: 20010049141
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20010049141 A1

TITLE: DRY POWDER CELLS AND CELL CULTURE REAGENTS AND METHODS OF PRODUCTION THEREOF

PUBLICATION-DATE: December 6, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
FIKE, RICHARD	CLARENCE	NY	US	
WHITFORD, WILLIAM	SANTA FE	NM	US	
RIDDLE, WILLIAM	BUFFALO	NY	US	

US-CL-CURRENT: 435/334; 435/404

Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Draw Desc | Image

2. Document ID: US 5591350 A

L1: Entry 2 of 4 File: USPT Jan 7, 1997

US-PAT-NO: 5591350
DOCUMENT-IDENTIFIER: US 5591350 A

TITLE: Iodine disinfection method using a gaseous iodine treated porous medium

DATE-ISSUED: January 7, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Piecnocki; Duane	Pleasantville	NY		
Bormann; Thomas J.	Melville	NY		
Gsell; Thomas D.	Glen Head	NY		
Pascale; Frank R.	Glen Cove	NY		
Matkovich; Vlado I.	Glen Cove	NY		

US-CL-CURRENT: 210/764; 210/443, 210/434, 210/501, 210/503, 210/767, 210/806, 422/1, 422/28, 422/37, 424/661, 424/[illegible] , 514/492

Full | Title | Citation | Front | Review | Classification | Date | Reference KWIC | Draw Desc | Image

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3. Document ID: US 4647539 A

L1: Entry 3 of 4 File: USPT Mar 3, 1987

US-PAT-NO: 4647539
DOCUMENT-IDENTIFIER: US 4647539 A

TITLE: Method and apparatus for growing cells in vitro

DATE-ISSUED: March 3, 1987

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bach; Bert R.	Minneapolis	MN		

US-CL-CURRENT: 435/297.4; 210/321.67, 210/321.79, 210/321.8, 435/394, 435/400

Full | Title | Citation | Front | Review | Classification | Date | Reference KWIC | Draw Desc | Image

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4. Document ID: JP 11513247 W, US 5614412 A, WO 9711233 A1, AU 9669721 A, EP 848771 A1, AU 697124 B

L1: Entry 4 of 4 File: DWPI Nov 16, 1999

DERWENT-ACC-NO: 1997-201485
DERWENT-WEEK: 200005
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TITLE: Carrier for flexible containers for therapeutic fluids or cell culturing - has parallel spaced plates connected and sepd. by spacers, and chamber for container defined between each adjacent pair of plates

INVENTOR: BENDER, J A; LOUDOVARIS, M ; MARTINSON, J ; MITSVEN, O D ; SMITH, S L ; UNVERZAGT, K ; BENDER, J ; UNVERZAGT, K L

PRIORITY-DATA: 1995US-0516054 (September 5, 1995)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 11513247 W	November 16, 1999		021	C12M001/00
US 5614412 A	March 25, 1997		007	C12M003/00
WO 9711233 A1	March 27, 1997	E	021	E03B001/00
AU 9669721 A	April 9, 1997		000	E03B001/00
EP 848771 A1	June 24, 1998	E	000	E03B001/00
AU 697124 B	September 24, 1998		000	E03B001/00

INT-CL (IPC): A61J 1/14; B67D 5/00; B67D 5/60; B67D 5/64; C12M 1/00; C12M 3/00; E03B 1/00; E03B 11/00

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("CELL CULTURING" AND "FLEXIBLE CONTAINER").USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	4

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1. Document ID: US 20010049141 A1

L2: Entry 1 of 3 File: PGPB Dec 6, 2001

PGPUB-DOCUMENT-NUMBER: 20010049141
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20010049141 A1

TITLE: DRY POWDER CELLS AND CELL CULTURE REAGENTS AND METHODS OF PRODUCTION THEREOF

PUBLICATION-DATE: December 6, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
FIKE, RICHARD	CLARENCE	NY	US	
WHITFORD, WILLIAM	SANTA FE	NM	US	
BIDDLE, WILLIAM	BUFFALO	NY	US	

US-CL-CURRENT: 435/384; 435/404

Full | Title | Citation | Front | Review | Classification | Date | Reference | KWIC | Draw. Desc | Image

2. Document ID: US 5591350 A

L2: Entry 2 of 3 File: USPT Jan 7, 1997

US-PAT-NO: 5591350
DOCUMENT-IDENTIFIER: US 5591350 A

TITLE: Iodine disinfection method using a gaseous iodine treated porous medium

DATE-ISSUED: January 7, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Piechocki; Duane	Pleasantville	NY		
Bormann; Thomas J.	Melville	NY		
Gsell; Thomas C.	Glen Head	NY		
Pascale; Frank R.	Glen Cove	NY		
Matkovich; Vlado I.	Glen Cove	NY		

US-CL-CURRENT: 210/764; 210/483, 210/496, 210/501, 210/503, 210/767, 210/806, 422/1, 422/26, 422/37, 424/667, 424/[illegible], 604/408

Full | Title | Citation | Front | Review | Classification | Date | Reference KWIC | Draw Desc | Image

3. Document ID: US 4647539 A

L2: Entry 3 of 3 File: USPT Mar 3, 1987

US-PAT-NO: 4647539
DOCUMENT-IDENTIFIER: US 4647539 A

TITLE: Method and apparatus for growing cells in vitro

DATE-ISSUED: March 3, 1987

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bach; Bert R.	Minneapolis	MN		

US-CL-CURRENT: 435/297.4; 210/321.67, 210/321.79, 210/321.8, 435/394, 435/400

Full | Title | Citation | Front | Review | Classification | Date | Reference KWIC | Draw Desc | Image

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PLASTIC.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	1011462
PLASTICS.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	397532
("CELL CULTURING" AND "FLEXIBLE CONTAINER" AND PLASTIC).USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	3

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L3: Entry 1 of 1 File: USPT Mar 3, 1987

DOCUMENT-IDENTIFIER: US 4647539 A
TITLE: Method and apparatus for growing cells in vitro

ABPL:
The present invention includes a cell culture apparatus for growing and maintaining living cells in vitro. The cell culture apparatus includes a shell being at least partially constructed of a flexible material. A plurality of capillaries are disposed within the shell, defining a cell culturing space between the capillaries and the shell wall. At least one of the capillaries has selectively permeable walls. The shell permits one end of the apparatus to be moved towards another end, spreading apart the capillaries.

BSPR:
The present invention includes an improvement in a cell culturing apparatus and a method of using the improved cell culturing apparatus for growing and maintaining living cells in vitro. The cell culturing apparatus includes a flexible container having an inner chamber. A plurality of capillaries are disposed within the chamber of the container, dividing the chamber into an intracapillary space (the lumen of the hollow capillaries) and an extracapillary space between the capillaries and the wall of the container. At least one of the capillaries has selectively permeable walls, and the intracapillary and extracapillary spaces communicate with each other only through the walls of the capillaries. The manner in which the capillaries are secured to the container and the flexibility of the container permit manipulation of the configuration of the container to separate the capillaries from each other within the chamber of the container.

DEPR:
As shown in FIG. 2, the middle segment 12 includes a rigid, preferably transparent plastic tube 18 of circular lateral cross section, and a pair of flexible annular end flanges 20 defining the longitudinal ends of the middle segment 12. The end flanges 20 are secured adjacent an outer edge 22 to the tube 18 forming a fluid seal. Inner edges 24 of the end flanges 20 define passages 26 to the interior of the middle segment 12, which passages 26 are aligned along the longitudinal axis 16 of the container.

DEPR:
Extending axially outwardly from the second ends 30 of the end segments 14, are a first set of tubular ports 50. Ports 50 fluidly communicate with the end chambers 44 and the lumens of the capillaries 34, for circulating a first fluid medium therethrough. This first fluid medium includes nutrients, oxygen and other chemical stimuli for enhancing and maintaining cell growth in the cell chamber or extracapillary space. A second set of tubular ports 52 extend outwardly from the first ends 28 of the end segments 14, in substantially perpendicular alignment with the longitudinal axis 16 of the container. Tubular ports 52 communicate with the extracapillary space of the central chamber 46, for circulating a second fluid medium therethrough and for implanting cells into the extracapillary space.

DEPR:
A Silicone polymer is a preferred flexible material because it is inert,

having no affect on living cells. A transparent plastic, such as polycarbonate, which is also substantially inert, is a preferred material for those portions of the apparatus 10 which are intended to be rigid. A transparent plastic permits observation of the cell growth and movement of the capillaries 34 within the central chamber 46 of the container. It should be noted that although middle segment 12 is depicted with a rigid tube 18 and flexible annular end flanges 30, any portion of the middle segment 12 or the end segments 14 may be constructed of flexible material so long as the container can be distorted to cause movement of the capillaries 34 within the central chamber 46.

DEPR:
A third alternative of the apparatus of the present invention is generally indicated at 60 in FIGS. 6 and 7. With the third alternative embodiment, the middle segment 12 includes a rigid, transparent plastic tube 62 having a circular lateral cross section. Preferably, the tube 62, an annular end wall 64, and a first end segment 66, are integrally formed of transparent plastic. The tube 62 is further secured to a second end segment 68 by a flexible, annular end flange 70. As illustrated in FIG. 7, second end segment 68 is simultaneously linearly moved toward and angularly rotated with respect to the first end segment 66 to displace the capillaries 34 from their normal position shown in FIG. 6, substantially parallel to and symmetrically disposed around longitudinal axis 16 within the central chamber 46. The linear movement and angular rotation relative to the longitudinal axis 16 of the container, are indicated by direction arrow 72. This twists and fans the capillaries 34 away from each other within the central chamber 46 as shown in FIG. 7.

CLPR:
1. An improved cell culture apparatus for in vitro cell growth, the apparatus including a shell having first and second end segments, a plurality of capillaries extending between the first and second end segments and a tubular wall extending therebetween, at least one of the capillaries having selectively permeable walls, a cell culturing space being defined between the capillaries and the tubular wall of the shell, and first and second ports attached to the shell in fluid communication with lumens of the capillaries, the improvement comprising:

CLPR:
16. The apparatus of claim 1 further comprising means for communicating with the cell culturing space.

CLPR:
17. The apparatus of claim 1 wherein the fluid pressure within the cell culturing space and within the lumens of the capillaries is selectively adjustable and the shape of the shell changes in response to changes in the fluid pressure within the cell culture space and the lumens of the capillaries, causing movement of the capillaries within the shell.

CLPR:
26. A cell culture apparatus for in vitro cell growth having a plurality of capillaries extending through a cell culturing space, the apparatus comprising:

CLPV:
circulating a first fluid medium carrying nutrients through lumens of the hollow fibers; and

CLPV:
a housing having first and second end segments and a tubular wall extending therebetween and the capillaries extending between the first and second end segments defining a cell culturing space between the capillaries and the tubular housing, the tubular housing having a portion constructed of a material sufficiently flexible so that the capillaries are movable with respect to each other when at least one of the end segments of the housing is moved.

CLPV:
a housing having first and second ends and a tubular wall extending between the first and second ends and a plurality of capillaries extending and attached to the first and second ends and a cell culturing space defined between the housing and the capillaries, the tubular wall being attached to the first and second ends by first and second flanges, at least one of the flanges being made of a material sufficiently flexible to that the capillaries are movable with respect to each other during cell culturing.

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L3: Entry 1 of 1 File: USPT Mar 3, 1987

DOCUMENT-IDENTIFIER: US 4647539 A
TITLE: Method and apparatus for growing cells in vitro

ABPL:
The present invention includes a cell culture apparatus for growing and maintaining living cells in vitro. The cell culture apparatus includes a shell being at least partially constructed of a flexible material. A plurality of capillaries are disposed within the shell, defining a cell culturing space between the capillaries and the shell wall. At least one of the capillaries has selectively permeable walls. The shell permits one end of the apparatus to be moved towards another end, spreading apart the capillaries.

BSPR:
The present invention includes an improvement in a cell culturing apparatus and a method of using the improved cell culturing apparatus for growing and maintaining living cells in vitro. The cell culturing apparatus includes a flexible container having an inner chamber. A plurality of capillaries are disposed within the chamber of the container, dividing the chamber into an intracapillary space (the lumen of the hollow capillaries) and an extracapillary space between the capillaries and the wall of the container. At least one of the capillaries has selectively permeable walls, and the intracapillary and extracapillary spaces communicate with each other only through the walls of the capillaries. The manner in which the capillaries are secured to the container and the flexibility of the container permit manipulation of the configuration of the container to separate the capillaries from each other within the chamber of the container.

DEPR:
As shown in FIG. 2, the middle segment 12 includes a rigid, preferably transparent plastic tube 18 of circular lateral cross section, and a pair of flexible annular end flanges 20 defining the longitudinal ends of the middle segment 12. The end flanges 20 are secured adjacent an outer edge 22 to the tube 18 forming a fluid seal. Inner edges 24 of the end flanges 20 define passages 26 to the interior of the middle segment 12, which passages 26 are aligned along the longitudinal axis 16 of the container.

DEPR:
Extending axially outwardly from the second ends 30 of the end segments 14, are a first set of tubular ports 50. Ports 50 fluidly communicate with the end chambers 44 and the lumens of the capillaries 34, for circulating a first fluid medium therethrough. This first fluid medium includes nutrients, oxygen and other chemical stimuli for enhancing and maintaining cell growth in the cell chamber or extracapillary space. A second set of tubular ports 52 extend outwardly from the first ends 28 of the end segments 14, in substantially perpendicular alignment with the longitudinal axis 16 of the container. Tubular ports 52 communicate with the extracapillary space of the central chamber 46, for circulating a second fluid medium therethrough and for implanting cells into the extracapillary space.

DEPR:
A Silicone polymer is a preferred flexible material because it is inert,

having no affect on living cells. A transparent plastic, such as polycarbonate, which is also substantially inert, is a preferred material for those portions of the apparatus 10 which are intended to be rigid. A transparent plastic permits observation of the cell growth and movement of the capillaries 34 within the central chamber 46 of the container. It should be noted that although middle segment 12 is depicted with a rigid tube 18 and flexible annular end flanges 30, any portion of the middle segment 12 or the end segments 14 may be constructed of flexible material so long as the container can be distorted to cause movement of the capillaries 34 within the central chamber 46.

DEPF:
A third alternative of the apparatus of the present invention is generally indicated at 60 in FIGS. 6 and 7. With the third alternative embodiment, the middle segment 12 includes a rigid, transparent plastic tube 62 having a circular lateral cross section. Preferably, the tube 62, an annular end wall 64, and a first end segment 66, are integrally formed of transparent plastic. The tube 62 is further secured to a second end segment 68 by a flexible, annular end flange 71. As illustrated in FIG. 7, second end segment 68 is simultaneously linearly moved toward and angularly rotated with respect to the first end segment 66 to displace the capillaries 34 from their normal position (shown in FIG. 6, substantially parallel to and symmetrically disposed around longitudinal axis 16) within the central chamber 46. The linear movement and angular rotation relative to the longitudinal axis 16 of the container, are indicated by direction arrow 72. This twists and fans the capillaries 34 away from each other within the central chamber 46 as shown in FIG. 7.

CLPF:
1. An improved cell culture apparatus for in vitro cell growth, the apparatus including a shell having first and second end segments, a plurality of capillaries extending between the first and second end segments and a tubular wall extending therebetween, at least one of the capillaries having selectively permeable walls, a cell culturing space being defined between the capillaries and the tubular wall of the shell, and first and second ports attached to the shell in fluid communication with lumens of the capillaries, the improvement comprising:

CLPF:
15. The apparatus of claim 1 further comprising means for communicating with the cell culturing space.

CLPF:
17. The apparatus of claim 1 wherein the fluid pressure within the cell culturing space and within the lumens of the capillaries is selectively adjustable and the shape of the shell changes in response to changes in the fluid pressure within the cell culture space and the lumens of the capillaries, causing movement of the capillaries within the shell.

CLPF:
26. A cell culture apparatus for in vitro cell growth having a plurality of capillaries extending through a cell culturing space, the apparatus comprising:

CLPV:
circulating a first fluid medium carrying nutrients through lumens of the hollow fibers; and

CLPV:
a housing having first and second end segments and a tubular wall extending therebetween and the capillaries extending between the first and second end segments defining a cell culturing space between the capillaries and the tubular housing, the tubular housing having a portion constructed of a material sufficiently flexible so that the capillaries are movable with respect to each other when at least one of the end segments of the housing is moved.

CLPV:
a housing having first and second ends and a tubular wall extending between the first and second ends and a plurality of capillaries extending and attached to the first and second ends and a cell culturing space defined between the housing and the capillaries, the tubular wall being attached to the first and second ends by first and second flanges, at least one of the flanges being made of a material sufficiently flexible to that the capillaries are movable with respect to each other during cell culturing.

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PLASTIC.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	1011462
PLASTICS.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	397532
CIRCULATING.DWPI,TDBD,EPAB,JPAB,USPT,PGPB.	200161
CIRCULATINGS	0
("CELL CULTURING" AND CIRCULATING AND "FLEXIBLE CONTAINER" AND PLASTIC).USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	1

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Refine Search: "flexible container" and "cell culturing" and "plastic" and "circulating" Clear

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USPT,PGPB,JPAB,EPAB,DWPI,TDBD	"flexible container" and "cell culturing" and "plastic"	3	L2
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	"flexible container" and "cell culturing"	4	L1

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Curtis	Wayne

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L1: Entry 1 of 4 File: PGPB Dec 6, 2001

DOCUMENT-IDENTIFIER: US 20010049141 A1
TITLE: DRY POWDER CELLS AND CELL CULTURE REAGENTS AND METHODS OF PRODUCTION THEREOF

BSTX:
[0013] The invention further provides methods of culturing a cell comprising reconstituting the nutritive media, media supplement, media subgroup or buffer of the invention with a solvent, which preferably comprises serum or water, and contacting the cell with the reconstituted nutritive media, media supplement, media subgroup or buffer under conditions favoring the cultivation of the cell. Any cell may be cultured according to the present methods, particularly bacterial cells, yeast cells, plant cells or animal cells. Preferable animal cells for culturing by the present methods include insect cells (most preferably Drosophila cells, Spodoptera cells and Trichoplusa cells), nematode cells (most preferably C. elegans cells) and mammalian cells (most preferably CHO cells, COS cells, VERO cells, BHK cells, AE-1 cells, SP2 0 cells, LS.1 cells, hybridoma cells or human cells). Cells cultured according to this aspect of the invention may be normal cells, diseased cells, transformed cells, mutant cells, somatic cells, germ cells, stem cells, precursor cells or embryonic cells, any of which may be established cell lines or obtained from natural sources.

DETX:
[0064] The agglomerated or spray-dried powdered nutritive media, media supplements, media subgroups or buffers prepared as described above may then be packaged, for example into containers such as vials, tubes, bottles, bags, pouches, boxes, cartons, drums and the like, prior to or following sterilization as described below. In one such aspect of the invention, the powdered media, media supplements, media subgroups or buffers may be packaged into a compact, vacuum-packed form, such as that known in the art as a "brick-pack" wherein the powder is packaged into a flexible container (such as a bag or a pouch) that is sealed while being evacuated. Such packages may advantageously comprise one or more access ports (such as valves, luer-lock ports, etc.) allowing the introduction of a solvent (e.g., water, sera, media or other aqueous or organic solvents or solutions) directly into the package to facilitate rapid dissolution of the powder. In a related aspect, the package may comprise two or more adjacent compartments, one or more of which may contain one or more of the dry powder media, media supplements, media subgroups or buffers of the invention and one or more other of which may contain one or more aqueous or organic solvents which may be sterile. In this aspect, the dry powder may then be dissolved by simply removing or breaking the barrier between the compartments, ideally without loss of sterility, to allow admixture of the powder and the solvent such that the powder dissolves and produces a sterile nutritive medium, medium supplement, medium subgroup or buffer at a desired concentration.